Amendments to the Claims:

The following listing of claims will replace all prior versions and/or listings of claims in the application:

Listing of Claims:

1. (Previously presented) A system for detecting an analyte in a fluid comprising:

a light source;

a sensor array, the sensor array comprising:

a supporting member comprising a plurality of cavities formed within the supporting member; and

a cover layer;

a plurality of particles, the particles being positioned within the cavities, wherein the particles produce a signal when the particles interact with the analyte during use, and wherein the cover layer is positioned above the supporting member at a distance such that the cover layer inhibits dislodgement of the particle from the cavity during use, and wherein the cover layer is positioned such that a channel is formed between an upper surface of the supporting member and the cover layer, and wherein the fluid passes through the channel during use;

a detector, wherein the detector detects the signal produced by the interaction of the analyte with the particle during use;

wherein the light source and detector are positioned such that light passes from the light source, to the particles, and onto the detector during use, and wherein the light source provides an area of light on an upper surface of the sensor array during use, wherein the

area of light encompasses two or more cavities.

2. (Original) The system of claim 1, wherein the system comprises a plurality of particles positioned within a plurality of cavities, and wherein the system is configured to substantially simultaneously detect a plurality of analytes in the fluid.

3. (Currently amended) The system of claim 1, wherein the plurality of cavities comprises a first cavity, and wherein ~~system comprises a~~ more than one particle of the plurality of particles are positioned within the first cavity.

4. (Original) The system of claim 1, wherein the light source comprises a light emitting diode.

5. (Original) The system of claim 1, wherein the light source comprises a white light source.

6. (Previously presented) The system of claim 1, wherein the sensor array further comprises a bottom layer and a top cover layer, wherein the bottom layer is positioned below a bottom surface of the supporting member, and wherein the top cover layer is positioned above the upper surface of the supporting member, and wherein the bottom layer and the top cover layer are positioned such that the particle is contained within the cavity by the bottom layer and the top cover layer.

7. (Previously presented) The system of claim 6, wherein the bottom layer and the top cover layer are transparent to at least a spectral portion of the light produced by the light source.

8. (Previously presented) The system of claim 1, wherein the sensor array further comprises a bottom layer and a top cover layer, wherein the bottom layer is coupled to a bottom surface of the supporting member, and wherein the top cover layer is coupled to a top surface of the supporting member; and wherein both the bottom layer and the top cover

layer are coupled to the supporting member such that the particle is contained within the cavity by bottom layer and the top cover layer.

9. (Previously presented) The system of claim 8, wherein the bottom layer and the top cover layer are transparent to at least a spectral portion of the light produced by the light source.

10. (Original) The system of claim 1, wherein the sensor array further comprises a bottom layer coupled to the supporting member, and wherein the supporting member comprises silicon, and wherein the bottom layer comprises silicon nitride.

11. (Original) The system of claim 1, wherein the sensor array further comprises a sensing cavity formed on a bottom surface of the sensor array.

12. (Previously presented) The system of claim 1, wherein the supporting member is formed from a plastic material, and wherein the sensor array further comprises a top cover layer, the top cover layer being coupled to the supporting member such that the particle is contained within the cavity, and wherein the top cover layer allows the fluid to pass through the top cover layer to the particle, and wherein both the supporting member and the top cover layer are transparent to light produced by the light source.

13. (Original) The system of claim 1, further comprising a fluid delivery system coupled to the supporting member.

14. (Original) The system of claim 1, wherein the detector comprises a charge-coupled device.

15. (Original) The system of claim 1, wherein the detector comprises an ultraviolet detector.

16. (Original) The system of claim 1, wherein the detector comprises a fluorescence detector.

17. (Previously presented) The system of claim 1, wherein the detector comprises a photodetector, and wherein the detector is coupled to the sensor array.

18. (Currently amended) The system of claim 1, wherein the particle ranges from about 0.05 ~~micron~~ microns to about 500 microns.

19. (Original) The system of claim 1, wherein a volume of the particle changes when contacted with the fluid.

20. (Original) The system of claim 1, wherein the particle comprises a metal oxide particle.

21. (Original) The system of claim 1, wherein the particle comprises a metal quantum particle.

22. (Original) The system of claim 1, wherein the particle comprises a semiconductor quantum particle.

23. (Original) The system of claim 1, wherein the particle comprises a receptor molecule coupled to a polymeric resin.

24. (Original) The system of claim 23, wherein the polymeric resin comprises polystyrene-polyethylene glycol-divinyl benzene.

25. (Original) The system of claim 23, wherein the receptor molecule produces the signal in response to the pH of the fluid.

26. (Original) The system of claim 23, wherein the analyte comprises a metal ion, and wherein the receptor produces the signal in response to the presence of the metal ion.

27. (Original) The system of claim 23, wherein the analyte comprises a carbohydrate, and

wherein the receptor produces a signal in response to the presence of a carbohydrate.

28. (Original) The system of claim 23, wherein the particles further comprises a first indicator and a second indicator, the first and second indicators being coupled to the receptor, wherein the interaction of the receptor with the analyte causes the first and second indicators to interact such that the signal is produced.

29. (Previously presented) The system of claim 23, wherein the particles further comprises an indicator, wherein the indicator is coupled to the receptor such that in the presence of the analyte the indicator is displaced from the receptor to produce the signal.

30. (Original) The system of claim 23, wherein the receptor comprises a polynucleotide.

31. (Original) The system of claim 23, wherein the receptor comprises a peptide.

32. (Original) The system of claim 23, wherein the receptor comprises an enzyme.

33. (Original) The system o f claim 23, wherein the receptor comprises a synthetic receptor.

34. (Original) The system of claim 23, wherein the receptor comprises an unnatural biopolymer.

35. (Original) The system of claim 23, wherein the receptor comprises an antibody.

36. (Original) The system of claim 23, wherein the receptor comprises an antigen.

39. (Original) The system of claim 1, wherein the system comprises a plurality of particles positioned within a plurality of cavities, and wherein the plurality of particles produce a detectable pattern in the presence of the analyte.

40-172. (Cancelled)

173. (Currently amended) The system of claim 1, wherein the ~~flood~~ light source and the detector are on a single optical axis.

174. (Previously presented) The system of claim 1, wherein the supporting member comprises silicon, and wherein the particle comprises a receptor molecule coupled to a polymeric resin.

175. (Cancelled)